```
        1                                                        50
 1   HHNGTNGTMM QYFEWHLPND GNHWNRLRDD ASNLRNRGIT AIWIPPAWKG
 2   ..NGTNGTMM QYFEWYLPND GNHWNRLRSD ASNLKDKGIS AVWIPPAWKG
 3   HHNGTNGTMM QYFEWYLPND GNHWNRLRDD AANLKSKGIT AVWIPPAWKG
 4   ....VNGTLM QYFEWYTPND GQHWKRLQND AEHLSDIGIT AVWIPPAYKG
 5   ..ANLNGTLM QYFEWYMPND GQHWRRLQND SAYLAEHGIT AVWIPPAYKG
 6   .AAPFNGTMM QYFEWYLPDD GTLWTKVANE ANNLSSLGIT ALWLPPAYKG

        51                                                       100
 1   TSQNDVGYGA YDLYDLGEFN QKGTVRTKYG TRSQLESAIH ALKNNGVQVY
 2   ASQNDVGYGA YDLYDLGEFN QKGTIRTKYG TRNQLQAAVN ALKSNGIQVY
 3   TSQNDVGYGA YDLYDLGEFN QKGTVRTKYG TRNQLQAAVT SLKNNGIQVY
 4   LSQSDNGYGP YDLYDLGEFQ QKGTVRTKYG TKSELQDAIG SLHSRNVQVY
 5   TSQADVGYGA YDLYDLGEFH QKGTVRTKYG TKGELQSAIK SLHSRDINVY
 6   TSRSDVGYGV YDLYDLGEFN QKGTVRTKYG TKAQYLQAIQ AAHAAGMQVY

        101                                                      150
 1   GDVVMNHKGG ADATENVLAV EVNPNNRNQE ISGDYTIEAW TKFDFPGRGN
 2   GDVVMNHKGG ADATEMVRAV EVNPNNRNQE VSGEYTIEAW TKFDFPGRGN
 3   GDVVMNHKGG ADGTEIVNAV EVNRSNRNQE TSGEYAIEAW TKFDFPGRGN
 4   GDVVLNHKAG ADATEDVTAV EVNPANRNQE TSEEYQIKAW TDFRFPGRGN
 5   GDVVINHKGG ADATEDVTAV EVDPADRNRV ISGEHLIKAW THFHFPGRGS
 6   ADVVFDHKGG ADGTEWVDAV EVNPSDRNQE ISGTYQIQAW TKFDFPGRGN

        151                                                      200
 1   TYSDFKWRWY HFDGVDWDQS RQFQNRIYKF RGDGKAWDWE VDSENGNYDY
 2   THSNFKWRWY HFDGVDWDQS RKLNNRIYKF RGDGKGWDWE VDTENGNYDY
 3   NHSSFKWRWY HFDGTDWDQS RQLQNKIYKF RGTGKAWDWE VDTENGNYDY
 4   TYSDFKWHWY HFDGADWDES RKI.SRIFKF RGEGKAWDWE VSSENGNYDY
 5   TYSDFKWHWY HFDGTDWDES RKL.NRIYKF ..QGKAWDWE VSNENGNYDY
 6   TYSSFKWRWY HFDGVDWDES RKL.SRIYKF RGIGKAWDWE VDTENGNYDY
```

Figure 1(a)

```
5        201                                                           250
     1   LMYADVDMDH PEVVNELRRW GEWYTNTLNL DGFRIDAVKH IKYSFTRDWL
     2   LMYADIDMDH PEVVNELRNW GVWYTNTLGL DGFRIDAVKH IKYSFTRDWS
     3   LMYADVDMDH PEVIHELRNW GVWYTNTLNL DGFRIDAVKH IKYSFTRDWL
     4   LMYADVDYDH PDVVAETKKW GIWYANELSL DGFRIDAAKH IKFSFLRDWV
10   5   LMYADIDYDH PDVAAEIKRW GTWYANELQL DGFRLDAVKH IKFSFLRDWV
     6   LMYADLDMDH PEVVTELKNW GKWYVNTTNI DGFRLDAVKH IKFSFFPDWL

         251                                                           300
     1   THVRNATGKE MFAVAEFWKN DLGALENYLN KTNWNHSVFD VPLHYNLYNA
15   2   IHVRSATGKN MFAVAEFWKN DLGAIENYLN KTNWNHSVFD VPLHYNFYNA
     3   THVRNTTGKP MFAVAEFWKN DLGAIENYLN KTSWNHSAFD VPLHYNLYNA
     4   QAVRQATGKE MFTVAEYWQN NAGKLENYLN KTSFNQSVFD VPLHFNLQAA
     5   NHVREKTGKE MFTVAEYWQN DLGALENYLN KTNFNHSVFD VPLHYQFHAA
     6   SYVRSQTGKP LFTVGEYWSY DINKLHNYIT KTDGTMSLFD APLHNKFYTA

20
         301                                                           350
     1   SNSGGNYDMA KLLNGTVVQK HPMHAVTFVD NHDSQPGESL ESFVQEWFKP
     2   SKSGGNYDMR QIFNGTVVQR HPMHAVTFVD NHDSQPEEAL ESFVEEWFKP
     3   SNSGGYYDMR NILNGSVVQK HPTHAVTFVD NHDSQPGEAL ESFVQQWFKP
25   4   SSQGGGYDMR RLLDGTVVSR HPEKAVTFVE NHDTQPGQSL ESTVQTWFKP
     5   STQGGGYDMR KLLNGTVVSK HPLKSVTFVD NHDTQPGQSL ESTVQTWFKP
     6   SKSGGAFDMR TLMTNTLMKD QPTLAVTFVD NHDTEPGQAL QSWVDPWFKP

         351                                                           400
30   1   LAYALILTRE QGYPSVFYGD YYGIPTHS.. .VPAMKAKID PILEARQNFA
     2   LAYALTLTRE QGYPSVFYGD YYGIPTHG.. .VPAMKSKID PILEARQKYA
     3   LAYALVLTRE QGYPSVFYGD YYGIPTHG.. .VPAMKSKID PLLQARQTFA
     4   LAYAFILTRE SGYPQVFYGD MYGTKGTSPK EIPSLKDNIE PILKARKEYA
     5   LAYAFILTRE SGYPQVFYGD MYGTKGDSQR EIPALKHKIE PILKARKQYA
35   6   LAYAFILTRQ EGYPCVFYGD YYGIPQYN.. .IPSLKSKID PLLIARRDYA

         401                                                           450
     1   YGTQHDYFDH HNIIGWTREG NTTHPNSGLA TIMSDGPGGE KWMYVGQNKA
     2   YGRQN..... .......... .......... .......... ..........
40   3   YGTQHDYFDH HDIIGWTREG NSSHPNSGLA TIMSDGPGGN KWMYVGKNKA
     4   YGPQHDYIDH PDVIGWTREG DSSAAKSGLA ALITDGPGGS KRMYAGLKNA
     5   YGAQHDYFDH HDIVGWTREG DSSVANSGLA ALITDGPGGA KRMYVGRQNA
     6   YGTQHDYLDH SDIIGWTREG GTEKPGSGLA ALITDGPGGS KWMYVGKQHA

45
```

Figure 1 (b)

75

```
         451                                                    500
5   1    GQVWHDITGN KPGTVTINAD GWANFSVNGG SVSIWVKR.. ..........
    2    .......... .......... .......... .......... ..........
    3    GQVWRDITGN RTGTVTINAD GWGNFSVNGG SVSVWVKQ.. ..........
    4    GETWYDITGN RSDTVKIGSD GWGEFHVNDG SVSIYVQ... ..........
    5    GETWHDITGN RSEPVVINSE GWGEFHVNGG SVSIYVQR.. ..........
10  6    GKVFYDLTGN RSDTVTINSD GWGEFKVNGG SVSVWVPRKT TVSTIARPIT

         501                519
    1    .......... ..........
    2    .......... ..........
15  3    .......... ..........
    4    .......... ..........
    5    .......... ..........
    6    TRPWTGEFVR WTEPRLVAW

20
```
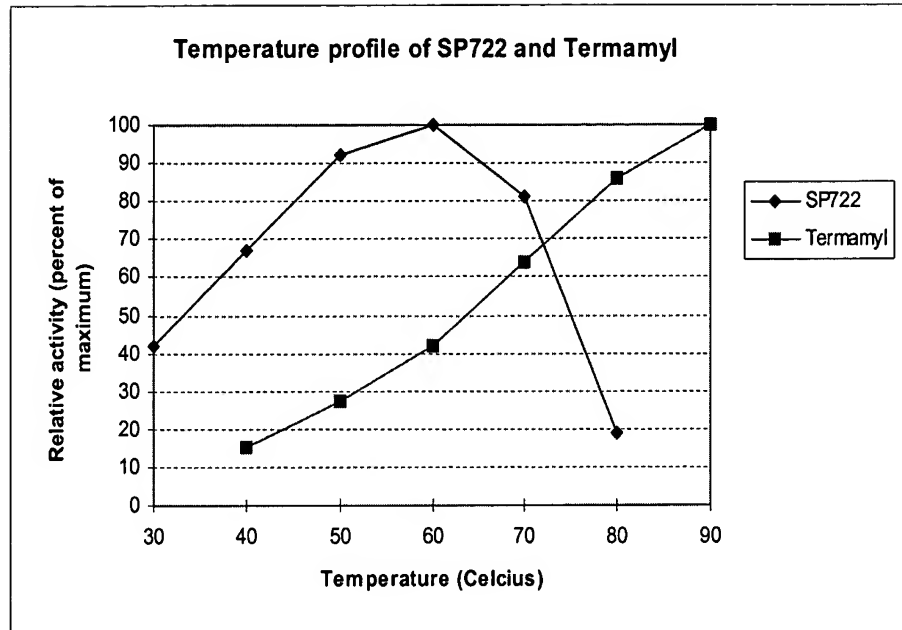
Figure 1 (c)

5

Figure 2 (b)
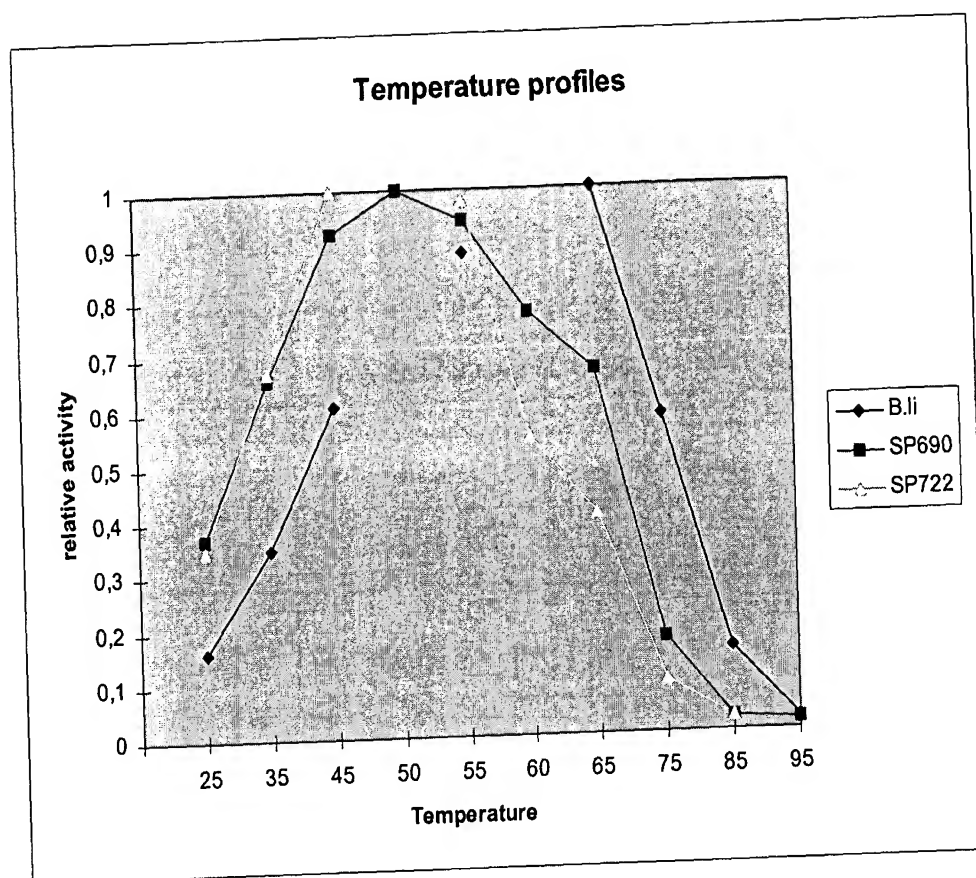
10

Figure 3

```
          1                                                    50
        1 MKFVLLLSLI GFCWAQYDPH TSDG.RTAIV HLFEWRWVDI AKECERYLAP
        2 .....LLSLI GFCWAQYDPH TADG.RTAIV HLFEWRWADI AKECERYLAP
        3 .......... .....QYAPQ TQSG.RTDIV HLFEWRWVDI ALECERYLGP
        4 MKFFLLLFTI GFCWAQYSPN TQQG.RTSIV HLFEWRWVDI ALECERYLAP
        5 MKLNKIITTA GLSLGLLLPS IATATPTTFV HLFEWNWQDV AQECEQYLGP

          51                                                   100
        1 KGFGGVQVSP PNENVVVHNP SRPWWERYQP ISYKICTRSG NEDEFRDMVT
        2 KGFGGVQVSP PNENIIINNP SRPWWERYQP ISYKICSRSG NENEFKDMVT
        3 KGFGGVQVSP PNENVVVTNP SRPWWERYQP VSYKLCTRSG NENEFRDMVT
        4 KGFGGVQVSP PNENVAIYNP FRPWWERYQP VSYKLCTRSG NEDEFRNMVT
        5 KGYAAVQVSP PNEHI....T GSQWWTRYQP VSYELQSRGG NRAQFIDMVN

          101                                                  150
        1 RCNNVGVRIY VDAVINHMCG AGNPAGTSST CGSYLNPNNR EFPAVPYSAW
        2 RCNNVGVRIY VDAVINHMCG SGNSAGTHST CGSYFNPNNR EFSAVPYSAW
        3 RCNNVGVRIY VDAVINHMCG SGAAAGTGTT CGSYCNPGNR EFPAVPYSAW
        4 RCNNVGVRIY VDAVINHMCG NAVSAGTSST CGSYFNPGSR DFPAVPYSGW
        5 RCSAAGVDIY VDTLINHM.. .AAGSGTGTA GNSF...GNK SFPI..YSPQ

          151                                                  200
        1 DFNDNKCN.. .GEIDNYNDA YQVRNCRLTG LLDLALEKDY VRTKVADYMN
        2 YFNDNKCN.. .GEINNYNDA NQVRNCRLSG LLDLALDKDY VRTKVADYMN
        3 DFNDGKCKTA SGGIESYNDP YQVRDCQLVG LLDLALEKDY VRSMIADYLN
        4 DFNDGKCKTG SGDIENYNDA TQVRDCRLTG LLDLALEKDY VRSKIAEYMN
        5 DFHES.CTIN NSDYG..NDR YRVQNCELVG LADLDTASNY VQNTIAAYIN

          201                                                  250
        1 HLIDIGVAGF RLDAAKHMWP RDIKAVLDKL HNLNTKWFSQ GSRPFIFQEV
        2 NLIDIGVAGF RLDAAKHMWP GDIKAVLDKL HNLNTKWFSQ GSRPFIFQEV
        3 KLIDIGVAGF RLDASKHMWP GDIKAVLDKL HNLNTNWFPA GSRPFIFQEV
        4 HLIDIGVAGF RLDASKHMWP GDIKAILDKL HNLNSNWFPA GSKPFIYQEV
        5 DLQAIGVKGF RFDASKHVAA SDIQSLMAKV N......... .GSPVVFQEV

          251                                                  300
        1 IDLGGEAIKG SEYFGNGRVT EFKYGAKLGT VIRKWNGEKM SYLKNWGEGW
        2 IDLGGEAIKG SEYFGNGRVT EFKYGAKLGT VIRKWNGEKM SYLKNWGEGW
        3 IDLGGEAIKS GEYFSNGRVT EFKYGAKLGT VVRKWSGEKM SYLKNWGEGW
        4 IDLGGEPIKS SDYFGNGRVT EFKYGAKLGT VIRKWNGEKM SYLKNWGEGW
        5 IDQGGEAVGA SEYLSTGLVT EFKYSTELGN TFR...NGSL AWLSNFGEGW

          301                                                  350
        1 GLVPSDRALV FVDNHDNQRG HGAGGSSILT FWDARMYKMA VGFMLAHPYG
        2 GFVPTDRALV FVDNHDNQRG HGAGGASILT FWDARMYKMA VGFMLAHPYG
        3 GFMPSDRALV FVDNHDNQRG HGAGGSSILT FWDAYRKLVA VGFMLAHPYG
        4 GFVPSDRALV FVDNHDNQRG HGAGGASILT FWDARLYKMA VGFMLAHPYG
        5 GFMPSSSAVV FVDNHDNQRG HGGAG.NVIT FEDGRLYDLA NVFMLAYPYG

          351                                                  400
        1 FTRVMSSYRW NRNFQNGKDQ NDWIGPPNNN GVTKEVTINA DTTCGNDWVC
        2 FTRVMSSYRR TRNFQNGKDV NDWIGPPNNN GVTKEVTINP DTTCGNDWVC
        3 FTRVMSSYRW ARNFVNGEDV NDWIGPPNNN GVIKEVTINA DTTCGNDWVC
        4 FTRVMSSYRW PRQFQNGNDV NDWVGPPNNN GVIKEVTINP DTTCGNDWVC
        5 YPKVMSSY.. ..DFHGDTDA GGPNVPVHNN GNLE...... ..CFASNWKC
```

Fig. 4 (a)

79

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     401                                                     450
   1 EHRWRQIRNM VAFRNVVNGQ .PFSNWWDNN SNQVAFSRGN RGFIVFNNDD
   2 EHRWRQIRNM VAFRNVVNGQ .PFANWWDNG SNQVAFSRGN RGFIVFNNDD
   3 EHRWREIRNM VWFRNVVDGE .PFANWWDNG SNQVAFGRGN RGFIVFNNDD
   4 EHRWRQIRNM VIFRNVVDGQ .PFTNWYDNG SNQVAFGRGN RGFIVFNNDD
   5 EHRWSYIAGG VDFRNNTADN WAVTNWWDNT NNQISFGRGS SGHMAINKED


     451                                                     500
   1 WALSATLQTG LPAGTYCDVI SGDKVDG..N CTGLRVNVGS DGKAHFSISN
   2 WALSSTLQTG LPAGTYCDVI SGDKVNG..N CTGLKVNVGS DGKAHFSISN
   3 WQLSSTLQTG LPAGTYCDVI SGDKVGN..S CTGIKVYVSS DGKAQFSISN
   4 WSFSLTLQTG LPAGTYCDVI SGDKING..N CTGIKIYVSD DGKAHFSISN
   5 STLTATVQTD MASGQYCNVL KGELSADAKS CSGEVITVNS DGTINLNIGA


             501                   521
           1 SAEDPFIAIH ADSKL..... .
           2 SAEDPFIAIH ADSKL..... .
           3 SAEDPFIAIH AESKL..... .
           4 SAEDPFIAIH AESKL..... .
           5 WDA...MAIH KNAKLNTSSA S
```

Fig. 4 (b)